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ABSTRACT

Described is the development and evaluation of the Micro-Place Social Studies Curriculum, an instructional system for teaching economics and law concepts at the fifth grade level. The curriculum is based on a miniature market economy that requires students to provide food, clothing, and shelter cards for simulated families. Students own businesses that offer these items or apply for a job as an employee. Governmental officials are elected, including a school board, council, mayor, and judges. Two criterion-referenced tests were used to determine the effectiveness of the curriculum. Performance on these tests was compared for ten classes of fifth-grade students participating in the Micro-Place curriculum and nine comparable classes receiving traditional social studies instruction. Students participating in the Micro-Place curriculum achieved significantly higher post-test scores than did those in control classrooms. Pre-test scores, IQ, previous achievement, and involvement in the Micro-Place curriculum were all significant predictors of post-test scores. Sex was not a significant factor. Students indicated a high level of satisfaction with the new curriculum. (Author/RM)

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Development and Evaluation of a Miniature Economic and Political System for Teaching Social Studies in the Elementary School

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Development and Evaluation of a Miniature Economic and Political System for Teaching Social Studies in the Elementary School

ABSTRACT

This study describes the development and evaluation of the Micro-Place Social Studies Curriculum, an instructional system for teaching economics and law concepts. The Micro-Place Curriculum is based on a miniature market economy designed by the author which requires students to provide food, clothing, and shelter cards for simulated "families." Students own businesses that offer these items or apply for a job as an employee. Governmental officials are elected in Micro-Place, including a school board, council, mayor and judges. Two criterion-referenced tests were used to determine the effectiveness of the Micro-Place Curriculum. Performance on these learning outcomes measures was compared for 10 classes of fifth-grade students receiving the Micro-Place Curriculum and nine comparable classes receiving traditional social studies instruction. Analyses of covariance (with pre-test socres serving as the covariate) revealed that classrooms receiving Micro-Place instruction achieved significantly higher post-test scores than did control classrooms. Using forced-order multiple regression analyses, it was found that pre-test scores, IQ, previous achievement, and involvement in the Micro-Place Curriculum were all significant predictors of post-test score. Sex was not a significant factor; nor were there sex x treatment or IQ x treatment interactions. Students indicated a high level of satisfaction with the Micro-Place approach for learning concepts in economics and law.

INTRODUCTION

In the past 12 years a whole host of models have been developed for helping students learn social studies concepts through the building of miniature economic and political systems in classrooms. These have included Richmond's Micro-Society (1973), Kourilsky's Mini-Society (1974, 1983), Jarvis' Micro-Community (1974), Bennett's Micro-City (1976) and Micro-Place (1984), Naumann's Kid Town (1976), Grove's Thaler system (Bumstead, 1978), Day's Mini-Economy (1984), and Gerlach's Maple program (1985), to name only a few. The present paper provides a brief analysis and critique of these systems and describes the development and evaluation of the Micro-Place approach to miniature society building in schools.

MAJOR MINIATURE SOCIETY COMPONENTS

Miniature societies in schools strive to model important aspects of real-world economic and political systems. Experiences occurring in these miniature societies are used to facilitate learning of concepts in economics, law, careers, etc. Miniature society models typically include a specially printed currency together with some plan for its distribution, student businesses, and various forms of self-government. A number of

programs have been described in the literature which involve children in making items that are sold for U.S. currency in the school or the community (e.g., see Tieken-Weber, 1981). Though these approaches may facilitate learning of economics concepts they do not typically engage students in miniature economic and political systems as defined in this paper.

The miniature economic systems utilized in programs designed to date generally fall into one or more of the following categories:

Token Economies

Teachers pay students for such things as academic work, classroom chores, and arts activities using a specially printed scrip. Students spend this money for special privileges (e.g., extra recess), for rent on desks, at auctions where basketballs, cookies and other items are sold to the highest bidder, etc. Students open a variety of businesses--including banks and post offices, and produce items for sale such as greetings cards, newspapers, and candles. Examples of programs utilizing token economies include Richmond's Micro-Society, Naumann's Kid Town, Gerlach's Maple program, and Day's Mini-Economy. Kourilsky and Hirshleifer (1976) refer to these as Imposed Behavior Modification programs.

Student Constructed Economies

Kourilsky's (1974, 1983) Mini-Society is an example of this approach. In the Mini-Society a scarcity of some commodity is first created (for example, a scarcity of felt tip pens). Teachers use this event to motivate students to devise a currency and a system for distributing it to obtain the scarce item(s). Children decide which classroom behaviors are deserving of payment, e.g., coming to school, handing in assignments on time, etc. Teachers and students in the

Mini-Society are paid as consultants for services rendered (e.g., special tutoring). Students also open various businesses, including insurance companies, billfold manufacturing shops, banks, and many others. Auctions are held but only for the purpose of promoting trade between students. Kourilsky and Hirshleifer (1976) refer to these economies as involving Socially Emergent Behavior Modification.

Comprehensive Miniature Economic Systems

Participants in comprehensive miniature economic systems learn to function in a pre-existing, complex economic environment in which they must provide food, clothing and shelter for simulated "families." In the market economy established in Bennett's (1984) Micro-Place, students draw a card from a deck to determine if they will be an employee or business owner. Seven different businesses exist in the Micro-Place: banks, real estate companies, food processors, grocery stores, clothing manufacturers, furniture manufacturers, and department stores. Price ranges that students can charge for these cards/services are set initially but students may change these based on market forces. In an optional unit, students open shops selling real goods and services. In the Micro-Place, teachers are paid by the elected school board for instructional services provided to students.

A variety of governmental systems have been used in school-based miniature societies. For example, in Gerlach's Maple program and Richmond's Micro-Society constitutional conventions are held (in one Micro-Society democracy barely prevailed as the governmental system chosen by students). In the Mini-Society the form and extent of government is determined by students; in fact, students may decide to have no government at all. Micro-Place students elect a three-member school board, a mayor, two judges and three council members. Extensive campaigns are conducted in the Micro-Place and many other miniature societies, with speeches, campaign buttons, placards, circulars and other techniques for persuading voters.

Once elected, governmental officials in miniature societies assume the responsibilities delegated to them.

TOKEN AND STUDENT CONSTRUCTED ECONOMIES: A CRITIQUE

The economic system utilized in token economy miniature societies involves paying students for an instructional service offered by the teacher. This is precisely the reverse of currency flow in most real-world economic situations, where consumers typically pay producers for services provided. Another problem with token economy approaches to miniature society building has been identified by Kourilsky and Hirshleifer (1976). They found smaller increases in economic understanding, assertiveness and feelings of autonomy when students were involved in token economy forms of Mini-Societies in comparison with non-token economy Mini-Society programs. Concerns have also been expressed by Lepper and Greene (1978) about the possibility of decrements in intrinsic motivation for tasks after provision of extrinsic rewards. Morgan (1984) in reviewing this research area concluded that the perception by the recipient of the functions of the extrinsic reward has a significant impact on whether extrinsic rewards will cause decrements in intrinsic motivation.

The Mini-Society approach is the most widely adopted and researched of the various models for building miniature societies in schools. Having students construct the behavior modification system represents an important divergence from token miniature economies; at least the

behavior modification is self-administered. Not surprisingly, Kourilsky and Hirshleifer (1976) have noted a tendency in some Mini-Societies for slippage in the direction of the token economy. This has taken the form of payment for non-productive work such as completion of homework assignments and punctuality. One factor in this slippage may be teacher attitudes about the proper classroom roles of students. Kedar-Voivodas (1983) has noted that teachers tend to prefer receptive learning in the classroom and for students who play the pupil role (passive, orderly, conforming, obedient, and acquiescent to rules and regulations). With the expectation that money is to be used to control classroom behavior, and the preference of some teachers for receptive, pupil student roles, it is not difficult to imagine that some teachers might develop ways of using the money to control additional behaviors.

In her recent book on the Mini-Society, Kourilsky (1983) has cautioned teachers about the danger of slippage towards the token economy model. Also, it is made clear that the payment for behaviors is to be terminated by the teacher after three weeks of business activity. Students are told that the government can no longer go on printing money to pay salaries of people for behaviors such as coming to school. If this practice is to continue, students are told, the money will have to come from taxes they levy on themselves. Kourilsky notes that this frequently results in a decrease in the provision of money for these behaviors and sometimes an outright abandonement of the practice. Continued

payment for these behaviors appears to be a type of welfare payment and in fact Kourilsky indicates that some students see the payment as a way of assuring a "minimum income." If students had no other way of earning income, continued provision of this payment might be advisable in the Mini-Society economic system, but with the opening of many businesses in the Mini-Society there should be many opportunities for productive activity. The key question here is what service or product is the continued recipient of these payments providing?

A more serious concern about the Mini-Society has to do with the nature and scope of the economic system established. Although designing an economic system from "scratch" is undoubtedly an important experience for learners, it does not model what normally happens in most societies. In most instances people must learn to function in and where necessary modify an economy that is already ongoing--be it capitalistic, communistic, or otherwise. Certainly in the foreseeable future students in the United States will very likely participate in a market economy. Operating businesses of various types can be an exciting experience for students and provide important insights about economics concepts. But without some inclusion of the components of food, clothing, and shelter, it strikes the author as a seriously limited economic system.

DEVELOPMENT OF THE MICRO-PLACE LEARNING ENVIRONMENT

Beginning in 1972, the author and several teachers at Bel Pre School in Montgomery County (Md.) began development of a model for building miniature societies in classrooms.[1] This program came to be known as the Micro-City (Bennett, 1975, 1976). The Micro-City involved first and fifth/sixth grade students in operating shops in the classroom and in some self-governance. Students were not paid for doing academic work. Instead, teachers were paid a salary by students because teachers were providing an instructional service. With the exception of a one-time allotment of money to all students to place the currency into circulation, money was exchanged only when goods or services were purchased. A wide variety of businesses were opened by students, including bakeries, arts and crafts shops, post offices, banks, dental hygiene clinics, dance studios, plant shops, game rooms, arts and crafts shops, etc. Two sixth-grader composers sponsored a series of concerts showcasing their music and that of other more famous composers. A student-teacher Council was established to formulate laws and set a budget for the Micro-City. A law school student trained lawyers and judges and helped in the operation of the Micro-City Court.

Although there was intensive economic activity in the Micro-City and students appeared to enjoy the experience, the need for an organized curriculum became increasingly apparent. Concepts in economics and law were discussed informally in the Micro-City, but there was no

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[1] First grade teachers involved in this development effort included Florence Simonds and Mary Nuggent; fifth grade teachers included Jean Hill, Barbara Mohr, and Chris Sneeringer.

organized debriefing of student experiences and no formal curriculum (though a handbook for teachers was written). My concerns at the time were perhaps best captured by John Dewey (1938):

> The final justification of shops, kitchens, and so on in the school is not just that they afford opportunity for activity, but that they provide opportunity for the kind of activity... which leads students to attend to the relation of means and ends, and then to consideration of the ways things interact with one another...Activity that is not checked by observation of what follows from it may be temporarily enjoyed. But intellectually it leads nowhere. Intelligent activity is distinguished from aimless activity by the fact that it involves selection of means---analysis--out of the variety of conditions that are present, and their arrangement--synthesis to reach an intended aim or purpose...experiences in order to be educative must lead out into an expanding world of subject matter of facts or information and of ideas.

In addition to this concern about the absence of an organized body of experiences, I began to realize that the Micro-City was providing a rather distorted view of the world to students. Something important was missing and over time it became apparent. Life does not consist of one happy shop day after another without any regard for the purpose of engaging in business activity. In most cultures shops are opened and businesses are expanded so that we can provide for ourselves and our families food, clothing, shelter and a few other pleasant amenities. This realization led to the development of a simulation called the "Micro-City Game." (Bennett and Bennett, 1977) The Micro-City Game involved participants in providing food, clothing and shelter to simulated families. All students owned a business or worked for someone who did. A government consisting of a school board,

council, mayor and judges was provided for in the simulation.

The Micro-City Game was field tested in several schools over a period of two years and in several University of Maryland classes and workshops. It was the author's mistaken assumption that this simulation could be given to teachers to use as a basis for contructing their own Micro-City curricula. It quickly became obvious that teachers did not have the time or energy to undertake such a project while meeting their normal teaching responsibilities.

A small grant was obtained from the Council on Economic Education in Maryland for writing a curriculum incorporating basic elements of the Micro-City simulation. The first draft of this program now called the Micro-Place Social Studies Curriculum, was subsequently pilot-tested in four fifth-grade classrooms in the Carroll County (Md.) Public Schools (Bennett and Bennett, 1981). Extensive revisions of several units were made and criterion-referenced tests prepared for measuring the impact of the Micro-Place experience. During the past four years, the Curriculum has undergone further field testing, evaluation and revision (Bennett, 1984).[2]

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[2]Carroll County Public School teachers involved in the pilot and/or field-testing of the Micro-Place Curriculum have included Leslie Bennett, Polly Beaver, Judi Clark, Cindy Eckenrode, Gloria Gall, Cathy Gilpin, Ruth Graybill, Janet Haack, Joan Hoffman, Donna Horst, Joanne Kassir, Terri Lambert, Gail Layfield, Donna Moody, and Linda Selby.

OVERVIEW OF THE MICRO-PLACE SOCIAL STUDIES CURRICULUM

The Micro-Place Social Studies Curriculum is designed to teach basic concepts in economics and law. There are two overall objectives which have guided the development of the Curriculum:

--To involve students for an entire semester in a simulated miniature economic and political system incorporating the elements of food, clothing, and shelter and a representational form of democratic governance.
--To use experiences in the simulated economic/political system as springboards for learning and analyzing economic and political events occurring in the miniature society.

The 12 units of the Micro-Place Social Studies Curriculum (Bennett, 1984) and the activities involved in each are as follows:

Unit I: Introduction to the Micro-Place

Students choose a Dependents Card randomly from a deck of cards; this determines whether they will be single or married, and how many children they will have. Students must provide food, clothing, and shelter for their simulated "families" through business activity in the Micro-Place.

Business owners and employees are determined by random draw from a deck of cards. Businesses include:

Food Processors (2)	Sell food cards to a Micro-Place grocery store.
Grocery Stores (2)	Sell food cards to Micro-Place customers.
Clothing Manufacturers (2)	Sell clothing cards to a Micro-Place department store.
Furniture Manufacturers (2)	Sell furniture cards to a Micro-Place department store.
Department Stores (2)	Sell clothing and furniture cards to Micro-Place customers.

Real Estate Companies (2)	Sell and rent apartments and houses to Micro-Place customers.
Banks (2)	Establish savings accounts for customers and obtain bank investors. Banks make mortgage and personal loans to Micro-Place customers.

Because bankers in Micro-Place need excellent mathematics skills, teachers are permitted to take applications for these businesses rather than having owners selected randomly.

Students who draw Employees Cards complete resumes and apply for jobs with Micro-Place businesses. Each business owner receives a one-time grant of $3,500 in Micro-Place money to begin the simulation, whereas each employee is provided with $1,000; thereafter, business owners and employees are required to earn through profits or wages the money needed to support their families.

Also, during Unit I, students rent a house or apartment for their "families" and are instructed in how to maintain a record of their expenses and income.

Unit II: Money and Banking

Banks open savings accounts for customers. Investors who inherit $45,000 in Micro-Place money choose a bank in which to invest. Banks use the money to make mortgage and personal loans to customers. Banks must maintain a cash reserve of 10% of deposits at all times. Students are physically led through a series of steps showing them how their banks will create money.

Unit III: Elections

A Mayor, School Board (3 members), Council (3 members) and Judges (2) are elected. Nomination petitions are submitted, campaign speeches are written, citizens learn how to register to vote and cast their ballots.

Unit IV: Buying a Home

Students learn how to fill out a Sales Contract for a house or apartment, make a downpayment with one of the real estate companies, and apply for a mortgage loan at one of the Micro-Place banks. If the loan is approved, the buyer and seller go to settlement where a bill of sale is completed and a Deed for the new owner is prepared.

Unit V: Council--Law Making

The Council meets to make laws which Micro-Place citizens must obey. Students learn what makes a good law and are involved in providing testimony to the Council on bills recommended by citizens.

Unit VI: Economics and You

A unit designed to introduce additional economics concepts in the context of the developing Micro-Place economy.

Unit VII: School Board

The School Board meets in public session to take testimony on the educational budget (including the teacher's salary in Micro-Place, funds needed for special tutoring of students, etc.). The School Board sends the recommended educational budget to the Mayor for inclusion in the total Micro-Place budget submitted to the Council in Unit X.

Unit VIII: Market Place I

Food clothing, and furniture cards are sold. A market survey is first done to determine probable demand for the items being sold. Students are taught to read supply and demand curves, learn how to set prices based on market forces, and are debriefed on what they have learned from selling products that would affect future business decisions.

Unit IX: Court

Court sessions are held dealing with both civil and criminal matters. Cases are heard by one of the two Micro-Place judges, the class, and a jury if requested. If no real cases exist (which is rare) mock court cases are presented.

Unit X: Council--Budget

The Council and assembled citizens meet to hear the Mayor's recommendations for the Micro-Place budget (including suggested government services and taxes needed to pay for these). Testimony is taken on the Mayor's recommendations and modifications made by the Council as appropriate. The budget approved by the Council can be vetoed by the Mayor, but the veto can be overriden by the Council if two of the three members vote to do so. Otherwise, the budget must be re-worked and re-submitted to the Mayor again.

Unit XI: Consumption, Profits and Taxation

Students draw cards to determine how much food, clothing, and shelter their families have consumed. Business owners are assisted in determining profit or loss. The Mayor also collects Micro-Place taxes.

Unit XII: Final Debriefing, Review and Post-test

During this unit students determine their net increase/decrease in resources (money, products). This is followed by a review of Micro-Place concepts and subsequent post-testing to determine student learning outcomes.

Optional Unit: Market Place II

During this unit students are given an opportunity to open shops making real goods and services. A second round of selling food, clothing, and shelter is also done.

The instructional manual for the Micro-Place Social Studies Curriculum specifies objectives for each unit, as well as skills that are to be developed. Materials needed for each lesson are indicated and step-by-step instructions for teachers to use in implementing the Curriculum. At the conclusion of most lessons a debriefing exercise is included to assure that students understand concepts underlying Micro-Place experiences. Forms are included in the Curriculum for all lessons (modifiable by students and teachers as the need arises). Music has been composed by the author to reinforce concepts learned.

EVALUATION OF MICRO-PLACE OUTCOMES

Teacher Training Program

Fifth grade teachers involved in the field-testing of the Curriculum participated in a 15-hour orientation workshop. This workshop presented basic information about the Micro-Place and involved teachers in making a set of materials for implementing the Curriculum in their classrooms. An implementation workshop was also offered to teachers using the Curriculum in their classrooms; this was designed to impart additional economics and law information and to provide critiques of problems and successes with the Curriculum which could be used in revisions of the program. (It has not been necessary to continue these implementation workshops in subsequent field-testing of the Curriculum.)

Evaluation of Student Learning Outcomes

Sample. A total of 250 students in 10 classrooms in the Carroll County (Md.) Public Schools participated in an evaluation of the impact of the Micro-Place Social Studies Curriculum. Eight different teachers were involved in the field testing of the Curriculum (one teacher utilized the Curriculum in three social studies classes). All students in the experimental group received the Curriculum during the regularly scheduled social studies period, approximately 150 minutes per week for 14 weeks. Control schools were identified by the Carroll County Public Schools on the basis of their similarity to the experimental schools. Control schools were contacted by the central office staff; nine teachers and a total of 250 students ultimately served as the control group for the project. All control students received their regular social studies lessons, which included some instruction in law but limited instruction in economics.

Instruments. Student performance was evaluated using two instruments designed to measure the extent to which students achieved the stated objectives of the Curriculum. Forms A and B of the Basic Economics Test (Chizmar & Halinski, 1981) were combined into a single 33-item instrument which was used for both pre- and post-testing of experimental and control classrooms. Two items were added and in a few instances questions were slightly re-worded in an attempt to improve item reliability. Several items were not included because the concepts tested are not taught in the Micro-Place Curriculum.

The second test used in evaluating pre- and post-test performance of experimental and control students was the Micro-Place Basic Concepts Test (Bennett, 1981). This test measures knowledge of concepts in economics, and law not covered by the Basic Economics Test. It is a 52-item instrument keyed to the objectives of the Micro-Place Curriculum.

Testing Schedule. Pre-testing of the experimental and control classrooms occurred during January and February with post-testing during late May/early June.

Reliability of Test Instruments. Kuder-Richardson$_{20}$ (KR_{20}) internal consistency reliability coefficients (alphas) were obtained for both the test instruments describe above. The reliability coefficient obtained for the Revised Basic Economics Test pre-test was .864, whereas for the post-test the coefficient was .895. These compare favorably with the reliability coefficients reported for each of the original two forms of the test. For the Micro-Place Basic Concepts Test the KR_{20} internal consistency reliability coefficients were .902 for the pre-test and .939 for the post-test. With only a few exceptions, item reliabilities are high for the Micro-Place Basic Concepts Test.

Tests for Significance: Experimental vs. Control Groups. One-way analyses of covariance (with the pre-test scores treated as the co-variate) were used to compare performance of the experimental and control classrooms on the Revised Basic Economics Test and the Micro-Place Basic Concepts Test.

A nested experimental design was employed, with classrooms treated as the unit of analysis. Mean pre- and post-test scores for the two learning outcome measures are indicated in Tables 1 and 2.

For the Revised Basic Economics Test (RBET), the adjusted mean post-test score of the experimental group was 24.88, whereas for the control group the mean adjusted mean post-test score was 18.53. This indicates that the experimental group achieved an adjusted average of 75.39% on the RBET post-test compared to an adjusted average of 56.15% for the control group. The analysis of covariance revealed that classrooms receiving the Micro-Place Curriculum scored significantly higher on the RBET than the control classrooms ($F=196.29$, 1,16 df, $p < .001$).

The results for the Micro-Place Basic Concepts Test (MPBCT) showed post-test adjusted means of 39.92 for the experimental group and 27.62 for the control group (see Table 2). This indicates that the experimental group achieved an adjusted average of 76.77% on the post-test of the MPBCT, while the control group attained an adjusted mean of 53.12%. The analysis of covariance revealed that the classrooms receiving the Micro-Place Curriculum scored significantly higher on the MPBCT than the control group ($F=277.59$; 1,16 df; $p < .001$).

Supplementary Data Analyses. In order to identify some of the key factors contributing to performance of students participating in the Micro-Place Social Studies Curriculum, a forced-order multiple regression

TABLE 1

Mean Pre- and Post-Test Scores
on the Revised Basic Economics Test for
Experimental and Control Groups

	Unadjusted Mean Pre-test Score	Unadusted Mean Post-Test Score	Adjusted Mean Post-Test Score
Experimental group N=10	16.05 (48.64%)	24.48 (74.18%)	24.88 (75.39%)
Control group N=9	17.10 (51.82%)	18.98 (57.52%)	18.53 (56.15%)

TABLE 2

Mean Pre- and Post-Test Scores
on the Micro-Place Basic Concepts Test for
Experimental and Control Groups

	Unadjusted Mean Pre-test Score	Unadusted Mean Post-Test Score	Adjusted Mean Post-Test Score
Experimental group N=10	24.68 (47.46%)	39.10 (75.19%)	39.92 (76.77%)
Control group N=9	26.61 (51.17%)	28.53 (54.86%)	27.62 (53.12%)

analysis was performed on this data (see Table 3). This analysis revealed that pre-test scores were as expected one of the significant predictors of post-test performance. Although IQ and previous achievement as measured by the California Achievement Test were also important factors, they actually contributed very little to performance that was not already predicted by pre-test scores. Corroborating the covariance analysis reported earlier, a very large treatment effect associated with participation in the Micro-Place can be noted in Table 3. No significant interactions were found between treatment and sex or treatment and IQ, indicating that involvement in the Curriculum was associated with comparable gains for both girls and boys and for children across a range of IQ levels.

Table 4 presents the results of the forced-order multiple regression analysis for the Micro-Place Basic Concepts Test. Again, the pre-test scores were a significant predictor of post-test performance. IQ and previous achievement were significant predictors of post-test performance, but accounted for little of the variance beyond that attributable to pre-test scores. The effect of receiving the Micro-Place Curriculum was again very strong, accounting for 37.1% of the variance in post-test scores. The interactions of treatment and sex or treatment and IQ were again not significant, indicating that for the MPBCT comparable gains occurred for both girls and boys and for children across a range of IQ levels.

TABLE 3

Forced-order Multiple Regression Analysis
for the Revised Basic Economics Test

Source	df	SS	MS	F	Proportion of Variance Accounted For (R^2 Change)
Pre-test	1	6170.08	6170.08	544.58*	.376*
IQ	1	270.74	270.74	23.90*	.016*
Achievement	1	217.27	217.27	19.18*	.013*
Sex	1	11.20	11.20	0.99	.001
Treatment	1	4716.23	4716.23	416.26*	.287*
Sex x Treatment	1	4.06	4.06	0.36	.000
IQ x Treatment	1	29.78	29.78	2.63	.002
Residual	440	4985.20	11.33		

$p < .01$

TABLE 4

Forced-order Multiple Regression Analysis
for the Micro-Place Basic Concepts Test

Source	df	SS	MS	F	Proportion of Variance Accounted For (R^2 Change)
Pre-test	1	14663.43	14663.43	544.30*	.329*
IQ	1	671.15	671.15	24.91*	.015*
Achievement	1	603.72	603.72	22.41*	.014*
Sex	1	61.69	61.69	2.29	.001
Treatment	1	16512.40	16512.40	612.93*	.371*
Sex x Treatment	1	38.37	38.37	1.42	.001
IQ x Treatment	1	84.62	84.62	3.14	.002
Residual	442	11907.88	26.94		

$p < .01$

Since the control group in this study received a limited amount of instruction in economics, an attempt was made to compare the experimental group results with a group of students who had also received extensive economics instruction. Chosen for this purpose was data from the Examiner's Manual of the Basic Economics Test (Chizmar and Halinski, 1981, pgs. 9-10). For the 31 items of the RBET that are nominally similar to the 31 items from Forms A and B of the original Basic Economics Test, mean percent of students answering each item correctly was identified for students with no economics instruction and for students with 13+ weeks of economics instruction. These were treated as pre- and post-test scores for purposes of this analysis. Gain/loss scores were calculated for each item for both the national norm sample and for students participating in the Micro-Place Curriculum. A series of z-tests on this data revealed that students involved in Micro-Place scored significantly higher than the national norm sample on 71% of the items. For 29% of the items there were no significant differences between the two groups.

It should be noted that the national norm sample did <u>not</u> receive the Basic Economics Test before and after economics instrucation as was the case in this study. Findings obtained in this study showed that a 5.70% increase in pre- to post-test scores on the RBET occurred with minimal instruction in economics. For the national norm sample

students with no economics instruction achieved an average percent correct for the 31 items of 48.68%, whereas 62.35% of students got the 31 items correct after 13+ weeks of instruction; this represents a gain of 13.67%. If one adds a 5.70% constant to the gain score of the national norm sample, a probable gain of 19.37% is obtained. An average pre- to post-test score gain of 25.36% was obtained for the experimental group on the 31 items similar to those on the Basic Economics Test. This suggests at the very least that the Micro-Place Curriculum compares favorably with previous approaches to teaching economics in the elementary school classroom.

Six items on the Micro-Place Basic Concepts Test measured skills in mathematical problem solving. Types of mathematics skills required included:

--Calculating profit (2 items)
--Reading a supply/demand graph
--Solving a percent problem (in determining amount of downpayment)
--Subtraction (subtracting downpayment amount from cost of a home to determine amount of money to be borrowed from the bank)
--Addition and multiplication (in determining total clothing bill based on number of shirts/blouses and shoes purchased)

The mean gain scores on these items was 24.20% for students participating in the Micro-Place Curriculum and 5.13% for students in the control group, or a level of performance for the experimental students which is nearly five times higher than for controls. A series of z-tests on differences in percent gain for experimental and control groups revealed that for

all six items students in Micro-Place achieved significantly larger percent gain scores than did control students ($p < .01$).

For all 14 items of the Micro-Place Basic Concepts Test measuring students' knowledge of the functions and responsibilities of various facets of our political system, z-tests revealed that students participating in the Micro-Place program made significantly larger gains than did students in the control group ($p < .01$). Similarly, superior performance of students in the experimental group was noted on z-tests for 22 of the 23 items in the Micro-Place Basic Concepts Test measuring knowledge of economics concepts and for eight out of nine items measuring basic life-skills information ($p < .01$).

Student Evaluations of the Micro-Place Social Studies Curriculum

Students involved in the Micro-Place were asked to complete a questionnaire evaluating the Curriculum. Question #1 asked that they indicate what they liked about the Micro-Place. Some of the common themes were:

--Having/making money
--Because it was like the real world
--Having a family
--Being Mayor, Judge, Council member, School Board member
--Voting
--Selling and profits
--Buying and economizing

Question #2 asked students what they did not like about Micro-Place. Some examples of comments were:

--The tests
--Paying bills
--Joker cards (happy and not-so-happy events that happen to Micro-Place participants; determined by random draw from deck of cards)
--Paying taxes
--Making money and then having to spend it
--The price of houses and having to make mortgage loan payments
--"Doomsday" (when students find out how much their families have consumed)

Question #3 asked students involved in Micro-Place to indicate on a scale of 1-5 how much they felt they learned (1= super amount to 5= almost nothing). The average score for all classrooms involved in Micro-Place was 1.94, indicating that students felt they learned "a lot" from their participation in the Curriculum.

Question #4 on the evaluation form asked students how they felt about the Micro-Place as a way of learning concepts in social studies (1= super to 5= poor). The average rating on this question across all experimental classrooms was 1.72, indicating an approval level between super (1) and great (2).

The final question on the evaluation form asked students to indicate what they will remember most about the Micro-Place. Some of the comments were:

--Being elected
--Serving as a government official
--Having money and owning a store
--How to act when I grow up!
--Working in a store

--Winning a court case
--How realistic it was
--How to buy a house
--How to spend your money wisely
--That life is hard
--Having a nice time
--Opportunity cost
--Working together with other people
--How to figure percentage
--The fun of running a business
--Market clearing price and graphs
--Making my own decisions
--I think I will remember how to live and how it's not as easy as you might think to buy five pairs of pants for everyone in your family.

DISCUSSION

The large positive treatment effect associated with participation in the Micro-Place Social Studies Curriculum is consistent with a study by Ellis and Glenn (1977). They randomly assigned 75 fifth and eighth grade students to one of three learning environments: 1) a group that studied economics concepts by means of such games and simulations as Market, Consumer, and the Credit Game; 2) a group learning economics concepts through planning and production of real products by means of an assembly-line procedure; 3) a group learning economics through discussions and workbook activities; and 4) a group studying geography but no economics. Students were given a test of economics knowledge at the conclusion of the four-week unit. Results revealed that students participating in the production of a real product scored significantly higher than both the discussion/workbook study group and the control group. The simulation group scored significantly higher than the discussion/workbook study group but not higher than the control

group. No significant differences were noted between the real and simulation groups. Because no pre-test data was collected in the Ellis and Glenn study, the authors were not able to rule out the possibility that the control group entered the experiment with a higher level of economics knowledge than did the other three groups (the authors noted that all groups had completed an economics unit earlier in the year). Another problem with the study is that the unit of analysis used should have been the group rather than the individual student. This would have required the use of at least 5-10 groups of students for each type of treatment.

The present study appears to support the Siegfried and Fels (1979) review suggesting that games and simulations are enjoyed by students. However, their statement that simulations/games may be an inefficient way of learning economics concepts must be qualified. The author would agree that role playing and decision-making activities involved in simulations do not automatically lead to understanding concepts in economics or law. Abstracting economics principles from experiences will only result from a carefully constructed curriculum designed to assure student development of such understandings. It is also the author's belief that simply playing two or three simulations/games will not suffice to assure comprehensive learning of economics concepts. What may be necessary is a personalized, intensive simulation experience that models some of the complexity of real-world economies.

The highly significant impact of the Micro-Place Social Studies Curriculum on learning outcome measures may indicate that student construction of miniature economies is not the critical variable in producing gains in economic knowledge and attitudes toward economics. Perhaps participation in designed economies is as beneficial as their construction. Further research will be needed to evaluate this suggestion.

The insignificant effect of gender either alone or in combination with the Micro-Place treatment is consistent with the Kourilsky and Hirshleifer (1976) and Kourilsky and Ballard-Campbell (1984) studies showing that in the Mini-Society gender was not a significant factor in either learning of economics concepts or in attitudes toward economics. Chizmar and Halinski (1983) did find a statistically significant difference favoring intermediate grade boys when measuring the impact of the Trade-Offs[3] economics education program, but the difference was so small as to be of no practical importance. In a more recent evaluation of the Trade-Offs program Martin and Bender (1985) using a smaller sample failed to find a significant effect of gender. The conclusion reached by MacDowell, Senn and Soper (1977) still seems to hold: gender does not matter in learning economics until sometime during the college years.

Prior to involvement in the Mini-Society, Kourilsky and Campbell (1984) found that business activity was seen by students as primarily a male domain; after Mini-Society involvement, a decrease in this perception occurred,

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[3]"Trade-Offs" is a series of fifteen 20-minute videotapes which are designed to assist children ages 9-13 years in learning key economics concepts.

as well as a decline in occupational sex stereotyping. There were, however, no sex differences in the children's risk taking, persistence or success in the Mini-Society economic system.

Kourilsky (1980) investigated which of 11 variables significantly contributed to success in the Mini-Society economic system. Using a discriminant analysis, she found that teacher rating of student persistence was by far the best predictor of success in Mini-Society businesses. ("Persistence" was shown in the willingness of the student to seek alternative approaches to problems.) For girls economic understanding was a significant predictor of business success in the Mini-Society. Ability level of students was a significant predictor of success in entrepreneurial activity for boys but not girls; risk taking was not a significant factor in business success of either boys or girls. Since business activity was not measured in the Micro-Place context, it is not possible to know whether similar results would be obtained; it is a subject worthy of future study.

IQ and prior achievement contributed significantly to the variance accounted for in post-test scores on the two learning outcomes measures used in the Micro-Place. However, the effect was very small if pre-test scores were entered into the regression equation first. The lack of significant IQ x treatment effects suggests that children with varying

IQ's benefited from Micro-Place involvement. This is consistent with the Kourilsky and Ballard-Campbell (1984) study showing that low, middle and high IQ students benefited similarly from participation in the Mini-Society.

Kourilsky and Hirshleifer (1976) found that the Mini-Society produced significant increases in overall autonomy whereas classrooms using token economies did not. Similar results were reported for student assertiveness. Data on student autonomy and assertiveness were not collected in the present study, though this is an important area for future research. Perhaps an attribution model would provide a more precise theoretical framework with which to investigate the impact of miniature societies on student autonomy (Weiner, 1972; Ames & Ames, 1984).

Recently, Martin and Bender (1985) have reported data showing that students possessing the cognitive style referred to as "field independent" learn more from the Trade-Offs economic education series than do "field dependent" students. Field dependent learners require more external structuring and more personal interaction during learning, whereas field independent learners exhibit more cognitive restructuring skills and are lower in social skills and social sensitivity (Witkin, 1977). Kourilsky (1980) in investigating the relationship between success in Mini-Society businesses and cognitive style found a significant but very small effect attributable to field independence. Given the degree of structure built into the Micro-Place Social Studies Curriculum it seems unlikely that field dependence/independence would

be a significant predictor of performance on the learning outcomes measures, but this bears evaluation in future research.

Tyler (1981) in summarizing the results of an international study of achievement by the International Association for the Evaluation of Educational Achievement (IEA) reported that the vast majority of 14-year-olds in all nations studied could add, subtract, multiply and divide. However, a smaller portion could apply these computation skills in solving practical mathematics problems (such as calculating total amount of purchases and computing taxes). Tyler recommended that children be provided with more opportunities to learn to solve such mathematics problems. Although the Micro-Place data summarized here are based on only six items, they do suggest that practice on practical mathematics problems may promote growth of such skills. More research is certainly warranted.

The results of the IEA study for civic education were reported by Torney, Oppenheim and Farnen (1975). They found that 14-year-old American students were in the middle range in knowledge of political systems and processes when compared with students in other developed nations. Torney-Purta (1984) in a further analysis of the data concluded that rote learning and authoritarian classroom practices were predictive of lower attitudes toward democratic values. Teacher encouragment of student expression of opinion was predictive of higher knowledge scores, less authoritarian attitudes on the part of students

and more participation in political discussion. The present study found that participating in Micro-Place elections and political discussions was associated with significantly higher scores on items measuring knowledge about our political system. No data was collected on democratic values or support and interest in participating in political activities, but such data will be obtained in future studies.

Elkind (1981) has remarked that one of the reasons children do poorly in school today is that they "...sense the lag between what and how they are learning in school and what is happening in the rest of the world" (pg. 47). He notes that Groos observed:

> (Y)oung animals play at stalking games (such as a young kitten playing with a ball of twine, or a cat playing with a mouse) which as adults they use in catching a prey. In a like manner, when children play house, they are engaging in preparatory activity for assuming adult roles. (pg. 193)

Miniature society building should not hurry children into adulthood but provide an opportunity to role play being an adult before having to accept all of the consequences that this will ultimately entail. The Micro-Place represents one promising way of bridging the gap between what and how children learn in school and the richness of "real" world experiences.

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